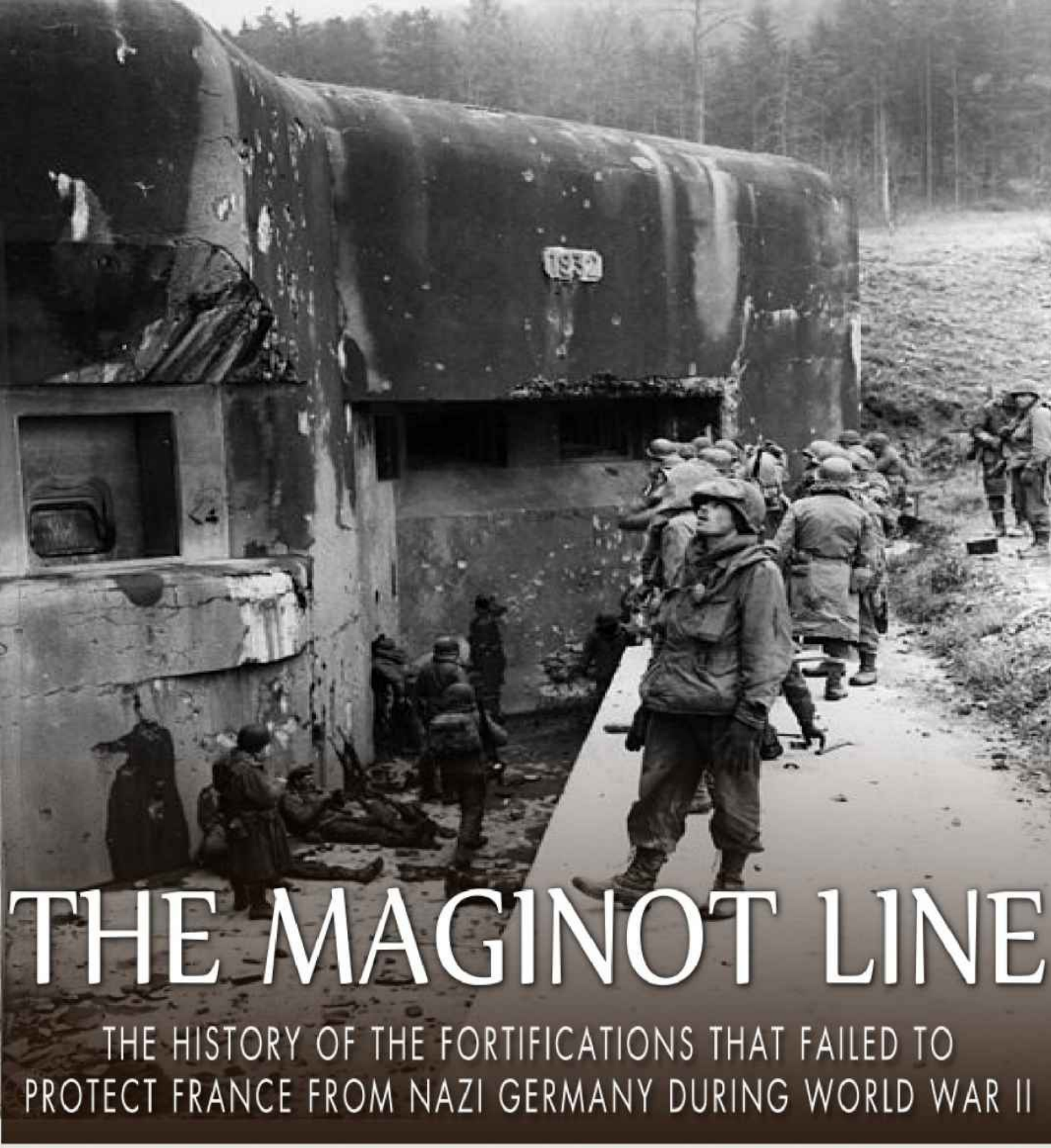

THE MAGINOT LINE

THE HISTORY OF THE FORTIFICATIONS THAT FAILED TO PROTECT FRANCE FROM NAZI GERMANY DURING WORLD WAR II

by

CHARLES RIVER EDITORS

The Maginot Line: The History of the Fortifications that Failed to Protect France from Nazi Germany During World War II

By Charles River Editors

Anti-tank rails comprising part of the Maginot Line

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Introduction

A picture of one of the Maginot Line's turrets

The Maginot Line

"We could hardly dream of building a kind of Great Wall of France, which would in any case be far too costly. Instead we have foreseen powerful but flexible means of organizing defense, based on the dual principle of taking full advantage of the terrain and establishing a continuous line of fire everywhere." – Andre Maginot, French Minister of War, 1929

As the power of Nazi Germany grew alarmingly during the 1930s, the French sought means to defend their territory against the rising menace of the Thousand-Year Reich. As architects of the most punitive measures in the Treaty of Versailles following World War I, the French government made natural targets for Teutonic retribution, so the Maginot Line, a series of interconnected strongpoints and fortifications running along much of France's eastern border, helped allay French fears of invasion.

The popular legend of the Maginot Line portrays the frontier defenses as a useless "white elephant" project that was prompted by a gross misapprehension of warfare's new realities in the mid-20th century and quickly overwhelmed by the forceful advance of the German blitzkrieg. English idiom today invokes this vision of the Maginot Line as a metaphor for any defensive measure strongly believed in but actually useless.

Indeed, usages such as "Maginot Line mentality," describing an overly defensive, reactive mindset, perpetuate the legend. As a French author and military liaison with the British, Andre Maurois, wrote about his disillusionment with the defensive line he originally enthusiastically supported: "We know now that the Maginot line-complex was a dangerous disease of the mind; but I publish this as it was written in January, 1940."

In reality, however, the actual Maginot Line proved considerably more functional than memory has

served. The true flaw in French military strategy during the opening days of World War II lay not in reliance on the Maginot fortifications but in the army's neglect to exploit the military opportunities the Line created. In other words, the border defense performed as envisioned, but the other military arms supported it insufficiently to halt the Germans. The French Army squandered the opportunity not because the Maginot Line existed but because they failed to utilize their own defensive plan properly. Some French commentary contributed to the legend, but the bloviating of politicians altered nothing regarding the Maginot Line's actual purpose or history: “General Maurin, defended the status quo in these words: ‘[H]ow could one think that we are still thinking about an offensive when we have spent billions to establish a fortified barrier? Would we be mad enough to advance beyond this barrier to undertake some adventure?’ [...] but the Maginot Line had never been conceived as a sort of Great Wall of China sealing France off from the outside world. Its purpose was to free manpower for offensive operations elsewhere.” (Jackson, 2004, 27).

In fact, a forgotten battle in the southeast of France, where four French divisions (later reduced to three by the redeployment of one northwards in a futile effort to stem the German tide) held off 32 Italian divisions thanks to the defensive power of the so-called “Little Maginot Line of the Alps,” proved the soundness of both the concept and engineering. Though the Italians suffered from poor equipment and the meddling incompetence of Mussolini's personal “leadership,” the fighting on the Alpine front brilliantly highlighted the Maginot Line's success as a “force multiplier.” French soldiers held off brave but futile Italian attacks at odds of 8:1 or 10:1 in favor of the Italians for five days until an armistice with the Axis put an end to this undeniable display of the Maginot Line's effectiveness.

The Maginot Line: The History of the Fortifications that Failed to Protect France from Nazi Germany During World War II chronicles the background and construction of the much maligned defensive fortifications. Along with pictures of important people, places, and events, you will learn about the Maginot Line like never before, in no time at all.

The Maginot Line: The History of the Fortifications that Failed to Protect France from Nazi Germany During World War II
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Chapter 1: World War I and the Origins of the Maginot Line

"At eleven o'clock this morning came to an end the cruellest and most terrible War that has ever scourged mankind. I hope we may say that thus, this fateful morning, came to an end all wars." – David Lloyd George, November 11th, 1918

By November 1918, despite tens of thousands of Allied casualties suffered while securing the Selle and le Cateau, the German army was virtually spent as a fighting force. Hundreds of thousands of German soldiers were dead, incapacitated or captured, many of them irreplaceable veterans. Germany simply could not field more soldiers than were being lost, even by calling up age classes which had been considered ineligible for mobilization at the start of the war, or fudging the numbers by forcing sick or wounded men to take up arms. Additionally, the Royal Navy blockade ensured that Germany was virtually bereft of supplies, so the rations received by soldiers on the front were increasingly insufficient to meet their needs or absent altogether. There was also a dearth of ammunition and medical supplies, not to mention machineguns and light and heavy artillery pieces, of which the Allies had captured hundreds in their lightning advance.

In early November, the British First, Third and Fourth Armies, alongside the French First Army and the AEF divisions now emerging from the Argonne, launched what would be their final advance against the German army. Advancing across a 30-mile front, the Allies would harass the Germans and prevent them from carving out another defensive line on the eastern bank of the Meuse.

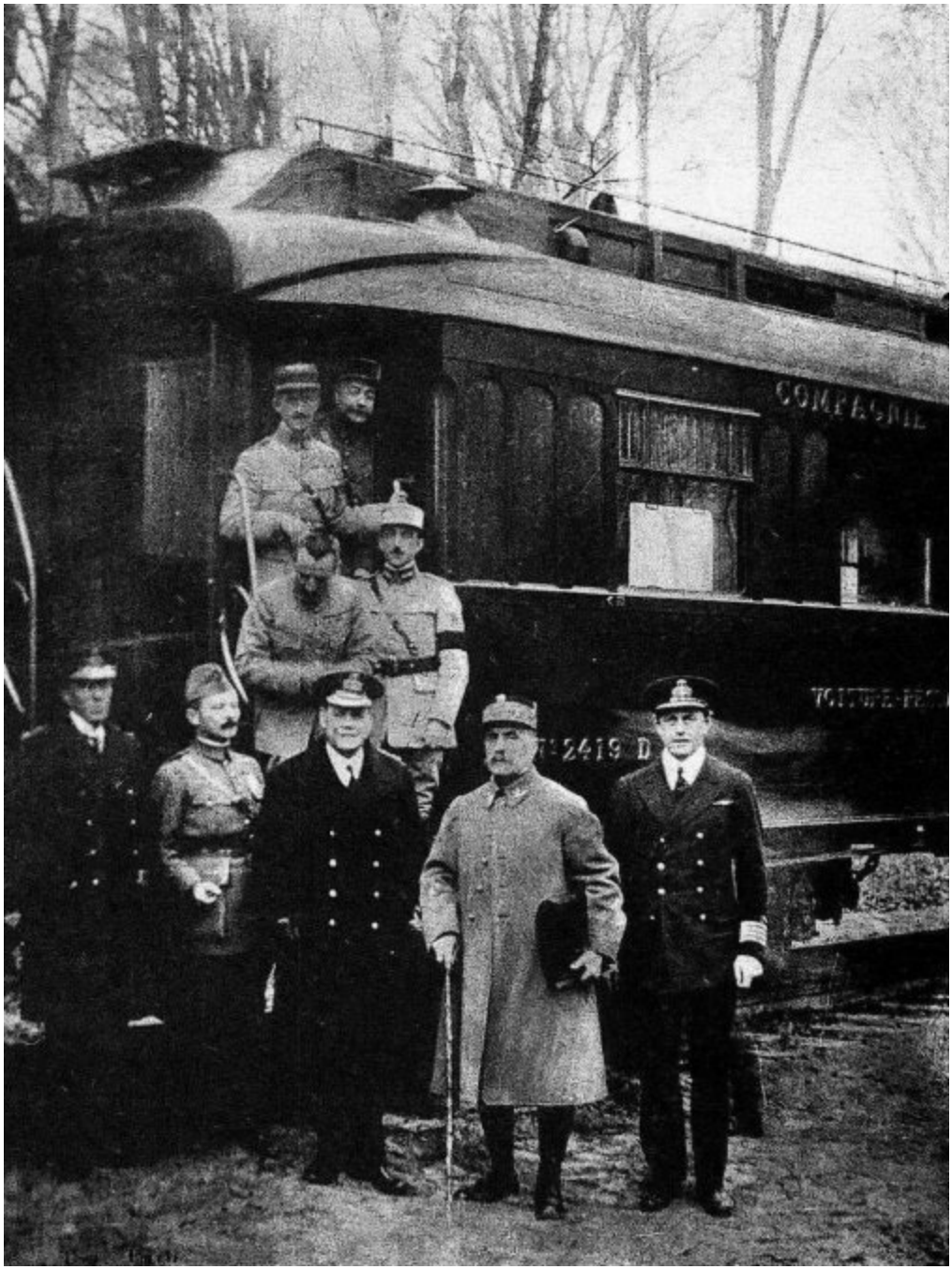
On November 4th, at 0500, 17 British and 11 French divisions launched a massive assault. Unlike the previous offensives of the Hundred Days, there would be no massed deployment of armor to shield the advance of the infantry. Battlefield attrition and mechanical failure had taken their toll, and the Royal Tank regiment had managed to muster less than 40 tanks for the attack. As a result of this, casualties among the leading infantry divisions were high. Leading the vanguard, XIII and IX Corps of the British Army ran into the Sambre Canal, an obstacle nearly 70 feet wide. Caught in the open, the XIII and IX corps were decimated by German artillery, which poured a murderous barrage on the attackers. Over a thousand British soldiers were killed in crossing the canal, which was eventually accomplished by throwing temporary bridges across the water under the lead of Lt. Colonel Johnson, who won the Victoria Cross doing so.

To the north, the IV and V corps were meeting with mixed success as they stormed the Mormal Forest and the village of Le Quesnoy, where a mixture of German troops (some war-weary to the point of exhaustion, others still willing to fight) had turned the village into a fortified strongpoint. The 9th Battalion of the 17th Division lost over half its men storming the buildings, while the Royal Welsh Fusiliers took their sector with barely a shot fired when the Germans surrendered before their advance. Eventually, all enemy forces were dislodged from Le Quesnoy, while the French First Army captured Origny-en-Thierache and Guise. By November 4th, the Allies had captured 3 miles of German ground on a 50-mile front, and the German army was in its death throes. Like an inexorable juggernaut, the Allied armies would advance relentlessly throughout the week leading up to November 11.

At 11:00 a.m. on the 11th day of the 11th month, the "war to end all wars" finally came to an end.

The Armistice brought about the cessation of all offensive activities in Europe, and the points detailed in the text of the armistice itself were mainly decided by Marshal Ferdinand Foch, the Supreme Allied Commander. Though based upon Woodrow Wilson's Fourteen Points, what they meant in brief was a complete and utter defeat for Germany. All military hostilities were to cease immediately within six hours, and Germany would withdraw all remaining troops from France, Luxembourg, Belgium and Alsace-Lorraine within two weeks. The Germans would also be obliged to pull back from their positions in Turkey, Romania and Austro-Hungary and resume the 1914 border line. Likewise, they would have to withdraw all forces on the Western front to the Rhine and submit to Allied occupation of a buffer zone. The German navy would also be confined to port, and all its submarines surrendered to the Allies, along with 5,000 artillery pieces, 25,000 machine guns, 3,000 mortars, 1,700 airplanes, 5,000 train locomotives and 150,000 train cars.

A painting depicting the signing of the Armistice in a carriage of Ferdinand Foch's private train, CIWL #2419



Foch (second from right in the front) at the signing of the Armistice

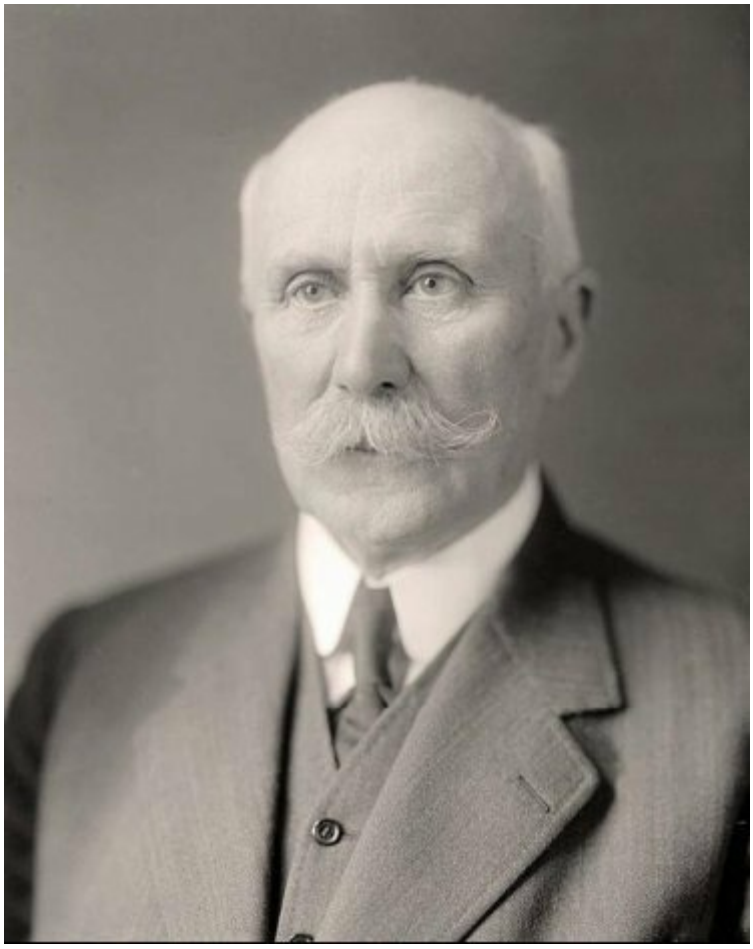
As the terms suggest, there was no sympathy for the Germans, either in the armistice terms or in those of the peace that followed. Likewise, public opinion (and that of the troops who had fought so hard and for so long) was strongly in favor of making examples out of the Germans. Millions had died, France and Belgium had been devastated, and Russia had been plunged into bloody revolution, and it was firmly believed that the Germans had been responsible for all of it and thus deserved everything they got. Accordingly, the Allies kept firing upon the German positions right until the very last possible second before the armistice came into effect. Carting spare ammunition back to the artillery depots seemed like an unnecessary task when it could simply be fired at the Germans, particularly in case they decided not to honor the terms of the agreement. In fact, Allied artillery was responsible for over 10,000 casualties on November 11th alone, with what was likely the final shot of the war being fired by Battery 4 of the U.S. Navy's Railway Guns at 10:57:30.

What followed World War I in the shell-shocked vacuum of a war-ravaged Germany is well-

known, and the merits of meting out such a ruthless punishment on the losers, and the resentment and hatred this fostered within the German population, has been debated at length. That said, it is difficult not to sympathize with the decision-makers who forced the terms of surrender down the Kaiser's throat after seeing millions of their young men march off to fight and die against what they saw as unrepentant German aggression. The peace process was always bound to be an emotional issue, particularly for the French and Belgians at the table who had seen huge swaths of their countries turned into barren, shell-blasted wastelands by four years of warfare.

That said, some of the veterans at the time presumed the Great War would not be the "war to end all wars." Indeed, Ferdinand Foch, the Supreme Allied Commander, prophetically asserted, "This is not a peace. It is an armistice for 20 years." Sure enough, less than 22 years later, another Armistice would be signed in the same railway carriage used in November 1918, and this time, it would bring about the end of hostilities in France after the Germans were victorious. A memorial building housing the carriage had been erected in 1927, and Adolf Hitler would symbolically use it for the surrender of France in 1940. American journalist William Shirer wrote of Hitler's reaction to the sight of the memorial and the carriage: "Through my glasses I saw the Führer stop, glance at the [Alsace-Lorraine] monument.... Then he read the inscription on the great granite block in the center of the clearing: 'Here on the eleventh of November 1918 succumbed the criminal pride of the German empire...vanquished by the free peoples which it tried to enslave.' I look for the expression on Hitler's face. I am but fifty yards from him and see him through my glasses as though he were directly in front of me. I have seen that face many times at the great moments of his life. But today! It is afire with scorn, anger, hate, revenge, triumph. He steps off the monument and contrives to make even this gesture a masterpiece of contempt. He glances back at it contemptuous, angry…Suddenly, as though his face were not giving quite complete expression to his feelings, he throws his whole body into harmony with his mood. He swiftly snaps his hands on his hips, arches his shoulders, plants his feet wide apart. It is a magnificent gesture of defiance, of burning contempt..."

Though it's often overlooked today, the French had made preparations in anticipation of a potential German invasion, and the concept of a line of defensive fortifications entered the French military and political consciousness almost as soon as the last shots of World War I were fired. Well aware that the Germans harbored a seething resentment towards their Gallic neighbors, French leaders like Marshal Henri Petain cast about for a means of halting future invasions at the border and preventing an invasion of French territory.



Henri Petain

In addition to the obvious reasons for such a defensive line, realistic demographic analysis bolstered their decision. France's people numbered 40 million compared to Germany's 70 million, and a greater proportion of France's military-age men died in World War I than perished among the Germans. The French lost some 10% of their military age adult male population during the First World War, including a full 29% of the men between 25 and 30 years of age, among the approximately 1.3 million war deaths suffered by their armies. No other country in the war except Romania suffered as catastrophic a demographic blow during the struggle. In fact, the deaths resulted in a population deficit that achieved its own momentum and depressed birth rates below death rates for years, as a 1919 report detailed: “In [Bordeaux] there had been an almost 50 percent decrease in the number of marriages from 1915 to 1917, and for the same period the number of civilian deaths had been twice that of births. The report had its amusing aspect – one of the few in a generally bleak discussion. It suggested that American soldiers be persuaded to stay in France, marry French girls who might otherwise be forced to remain single owing to the lack of eligible Frenchmen, and raise large families.” (Hughes, 2006, 18).

Germany's population fell short of the United States' 115 million during the 1920s, but it still presented an insurmountable gap in manpower for the French to contend with. Furthermore, German births per couple exceeded those of French births in the same period, a fact clearly before the Maginot Line's planners. Thus, the Germans held a demographic advantage, and the French only expected it to worsen as the next generation matured to adulthood. Clearly, the French needed a force multiplier so that their smaller, aging population might hope to defy the numerous, youthful Germans in a future war.

As if the manpower disadvantage wasn't enough, German industrial output dwarfed France's, and Germany possessed far greater resources, including 423 billion tons of coal reserves versus France's 18 billion tons, for example (Kaufmann, 2006, 12). France's occupation of the Ruhr industrial district likely represented an attempt to level the productive playing field, but unfortunately for the French, denying German access to this region helped trigger ghastly economic catastrophe in Germany, contributing to the population's radicalization and desperation, their hate for the French, and their support for their seeming savior, Adolf Hitler.

All the while, the French assisted greatly in creating the losing situation they found themselves in. Bent on punishing the Germans with poverty rather than rebuilding them into a friend (as the United States managed successfully with both Germany and Japan following World War II), the Gallic leaders then hamstrung their own war preparations by eschewing weapons upgrades due to the cost of replacement: "In 1919, at Versailles, the French and their allies, bent on *revanche* (revenge), created a treaty intended to crush [...] Germany's ability to threaten their security. The limitations imposed by this treaty nonetheless failed to allay the fears of the French military and political establishments. […] During the next two decades, the French command and governmental bureaucracy created such a complex situation that it hindered the development of their own military doctrine and new weaponry." (Kaufmann, 2006, 2).

In practical terms, this meant the French equipped the Maginot Line with obsolete 75mm guns for the most part, and though the guns penetrated German tank armor of the day, their range stacked up poorly against newer artillery designs, leaving larger gaps for mobile Army forces to defend. Nevertheless, they eventually gave the Maginot Line "teeth" capable of inflicting heavy damage on German military assets advancing within range.

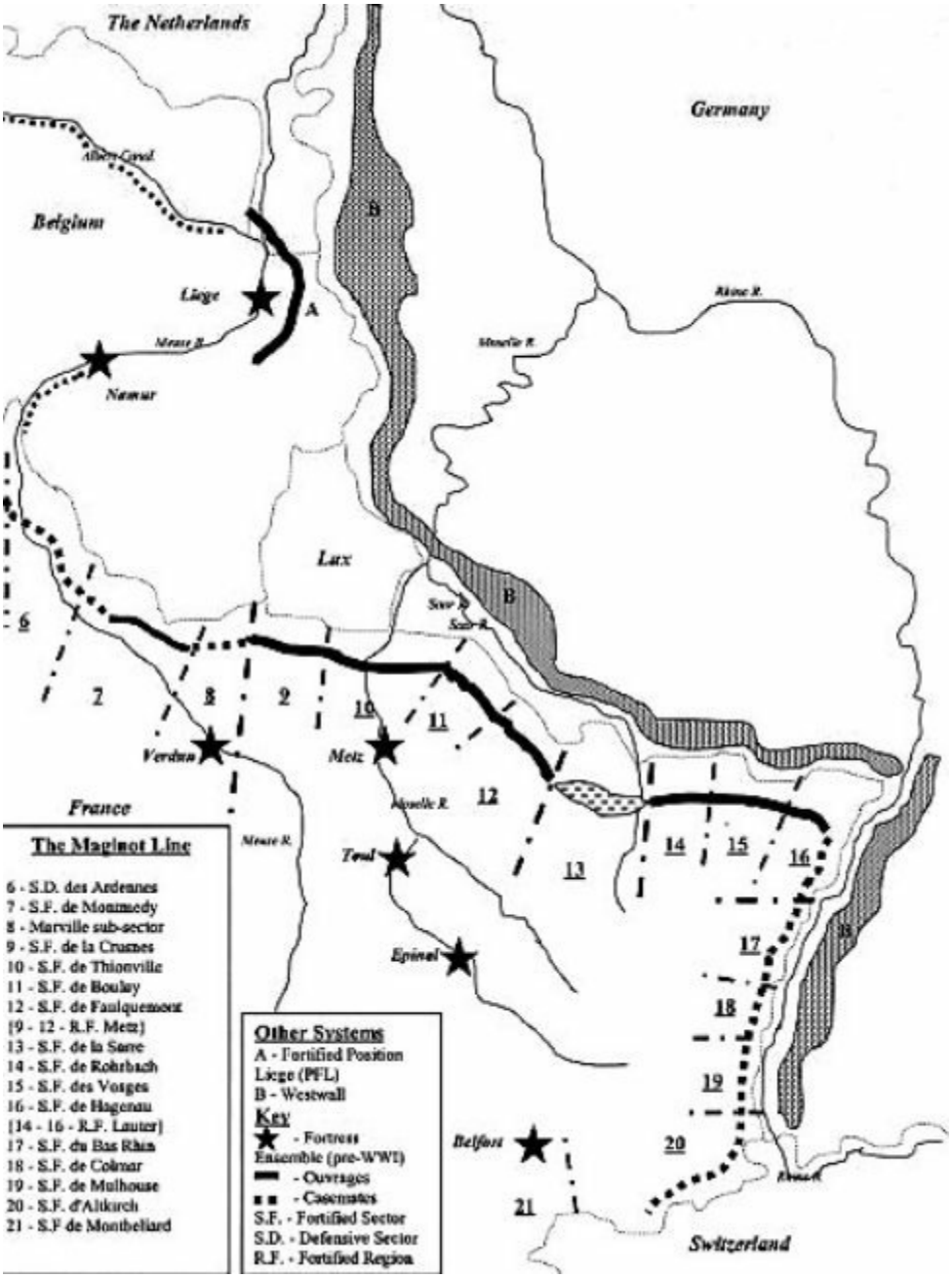
Chapter 2: The Construction of the Maginot Line

The French began discussions about an extensive line of frontier fortifications as early as 1918, clearly anticipating that the end of the World War I offered a hiatus, not a permanent solution to Europe's problems. The first serious proposal was put forward in 1920 by Joseph Jacques Cesaire Joffre, a famous French Marshal, who suggested a staggered line of fortified regions from the English Channel to the essentially impassible barrier of the Alps. French forces would use these detached zones as temporary shelters, protecting them while they organized to sally forth on the offensive.

Joffre

Ultimately, the French government rejected this plan in favor of another plan devised by Marshal Henri Petain, “the Lion of Verdun.” Ironically, this French war hero would become an eventual traitor and Nazi collaborator, but his plan, advanced in 1921, led directly to the Maginot Line. The concept called for a continuous fortified line rather than a series of separate fortified “refuges” for French offensive forces.

This proposed line covered the part of the border abutting the Rhine River, and part of the Moselle River up to Thionville. The plan left a gap between the Line and the English Channel, but Petain had his reasons for this arrangement; the Ardennes Forest near Thionville presented a difficult obstacle to mechanized forces, so Petain reasoned the Germans would probably avoid it, rendering fortifications along this border region superfluous. Further on, between the forest and the sea, “he held that the frontier with Belgium 'can only be defended from within Belgium.' In this he was probably correct. West of the Ardennes, the Franco-Belgian frontier ran through mostly low-lying, open country with no natural barriers. […] Finally, in the 1920s, Belgium was a committed French ally and the most logical defensive strategy was for France and Belgium to jointly defend the line of Belgian fortifications along the Meuse River in eastern Belgium.” (Allcorn, 2003, 8).



A map of the line and the layout of its defense in depth

Though the French chose Petain's scheme, debate and planning continued for another six years until, in 1927, they established an official body to research specifics, feasibility, and costs. In that year, the French government created an official commission called the Commission for the Organization of Fortified Regions (the name of which in French abbreviated to CORF) under General Charles Belhague, an energetic veteran with extensive military engineering experience.

CORF oversaw the actual construction of the fortress line, but the French military and government continued to move quite slowly. The National Assembly finally passed a law permitting construction of the frontier defenses in January 1930, and Andre Maginot, the Minister of War, proved instrumental in persuading the Assembly to create and pass the legislation. He won over politicians from both sides of the political spectrum by appealing to the right's militaristic patriotism and the left's desire to generate major work projects to assist the average French worker in the wake of the First World War's economic devastation.

The remarkable political unanimity that rallied to approve the “fortress law” resulted from

Maginot's eloquence, patriotism, and energetic support. As such, “the fortress line would bear henceforth. For the first phase of its construction, the Assembly voted the immense sum of 3,000 million francs, to be spread over four years. Work on the Maginot Line began at once; as Maginot himself stressed, it had to be completed by 1935, the date appointed by the Versailles Treaty for France finally to withdraw her troops from the Rhineland.” (Horne, 2007, 42). Maginot died in 1932 at the age of 54 from typhoid fever, underlining how recently disease easily curable or preventable in the later 20th century killed even individuals with access to the era's best medical care. He never actually saw the Maginot Line completed, but he witnessed work vigorously underway on his concrete and steel brainchild before perishing.

Maginot

Construction lasted through 1935, at which point the French government deemed the major portion of the Maginot Line complete, and the government dissolved CORF the following year. The actual cost amounted to 5 billion francs (as opposed to the original 3 billion francs), and it involved the participation of large parts of France's construction industry. “Construction of the fortifications, carried out by a large number of civilian construction firms under contract to the French government, was an immense project comprising l00km of tunnels, 12 million cubic metres of earthworks, 1.5 million cubic metres of concrete, 150,000 tons of steel and 450km of roads and railways.” (Allcorn, 2003, 9).

Though the Maginot Line proper essentially reached its final form in 1935, work on other frontier defenses continued elsewhere. The rise of fascism in Italy led to French alarm regarding invasions by the armies of Benito Mussolini, so France erected smaller fortified sectors facing the Italian frontier. The French even built some fortresses on the island of Corsica, the birthplace of Napoleon Bonaparte, in preparation for a seaborne invasion by the Italians. As a result, the Maginot Line ended up as the centerpiece of a much wider chain of fortresses stretching almost from the North Sea in the north to a point far out in the waters of the Mediterranean in the south. The French remained unsure of exactly where the next menace to their sovereignty would come from, but they knew it would arrive from the east.

To a degree, the Maginot Line represented the best selection among a number of bad choices. The French, committed to punishing the Germans and thus maintaining a hostile mood between the countries, initially predicated their strategy on the basis of keeping the Rhineland as an occupied "buffer zone" to prevent war in French territory and maintain a grip on the nape of the Germans' collective neck. "Only by permanently occupying the Rhineland, [...] could France avoid the agonizing choice, each time Germany failed to fulfill its commitments, between crossing the frontier and appearing as the disturber of the peace, and doing nothing and thereby exposing its weakness. […] 'In a word,' Foch remarked in his notebooks, 'the Rhineland is a lever that we have in our hand and with which we can call the tune.'" (Hughes, 2006, 26).

However, France did not enjoy sole control over the length of the Rhineland occupation, as both Great Britain and the United States, fellow signatories to the Treaty of Versailles, also exerted influence over the policy. The British, lacking a common border with Germany and perhaps harboring less resentment against them, preferred a temporary occupation at most. The United States, even more distant and even less hostile to Germany, saw little reason for a Rhineland occupation at all.

Under pressure from these powerful partners, the French compromised with a 15 year occupation, which was agreed to in 1920. This plan slated the end of the Rhineland occupation for 1935, thus explaining the Maginot Line concept and its sudden approval after years of hemming and hawing shortly before the occupation's scheduled finish.

Of course, by then, economic turmoil and violence, plus near-starvation, in Germany – largely due to excessively front-loaded French monetary demands combined with occupation of key economic regions near the Rhine – catapulted Hitler to power. The new Fuhrer of the Third Reich gained his dominion through promises to restore Germany's prosperity and glory, which involved crushing the French in revenge for their revenge.

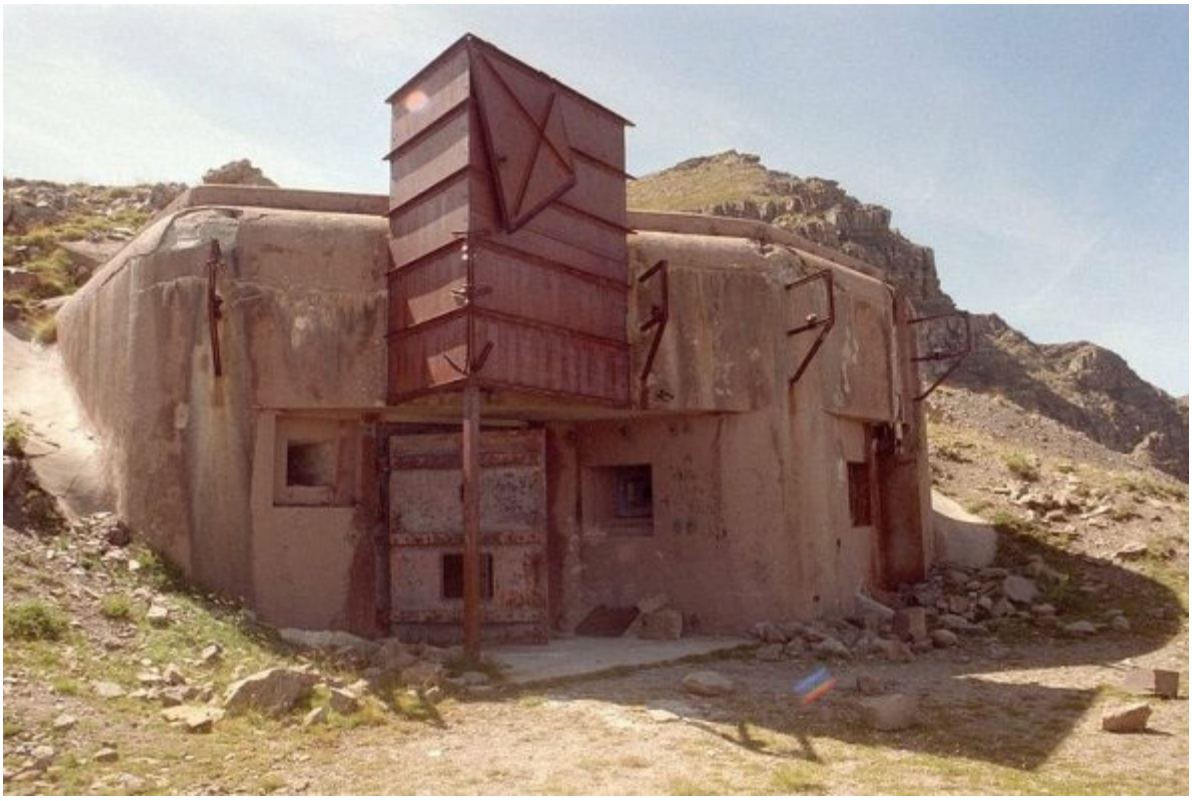
The French built the Maginot Line as a last-minute but still timely solution to a threefold problem: their lack of manpower, their loss of the Rhineland buffer zone, and the resurgence of an aggressive, armed, and bitterly angry Germany under Adolf Hitler. And though the French fashioned some of these rods for their own backs, the Maginot Line represented a rational response to the unfortunate situation the French found themselves in. Correctly used, it might channel fighting into Belgium, avoiding destructive conflict on French soil already ravaged by a recent modern war, while enabling the French military to punch well above its weight due to heavily defended "safe zones" into whose lethal fire the retreating French could draw the Germans should an offensive thrust fail.

In fact, though they were later inclined to scoff at the Maginot Line as a flight of Gallic fancy, the English initially shared the French's delight in the results, and, according to the author and liaison Andre Maurois, perhaps reveled in the Line even more: "What has already, before the supreme test, deserved all the wonder and praise is the fact alone that generals and engineers have dared to convert into fortresses not only whole mountains, but a whole range of mountains, that they should have impregnated with fire every inch of the threatened ground all along our north-eastern frontiers and found Government after Government willing to give them the necessary millions ... The English never wearied of poring over the annotated photographs, the firing-maps, the drawings and the diagrams which mean that on a single telephone call of three or four figures, a storm of shells will rain on such and such a segment." (Evans, 2000, 7).

Ironically, the Germans shared the Allies' high opinion of the Maginot Line, a factor that proved critical in the actual course of their 1940 invasion. Indeed, they busily constructed their own defensive fortified lines in the latter 1930s, including the West Wall along the French frontier (designed to block a French thrust anticipated during the invasion of Poland) and the East Wall. Temporarily abandoning these projects during the early war years, the Germans later strengthened the West Wall into the Siegfried Line as the D-Day invasion approached. As fate would have it, the Maginot Line also witnessed a final use in 1945 when the Wehrmacht manned it in an attempt to block or at least slow American advances across the Rhine frontier into Germany proper. Today, some relics of the Line remain in the French countryside, including a few isolated thickets of anti-tank barriers and a handful of posts on which the French originally strung barbed wire.

Picture of a mortar within the Maginot Line

Picture of a bunker with a rotating turret



Picture of structures along the Maginot Line

Chapter 3: Military Aspects of the Maginot Line

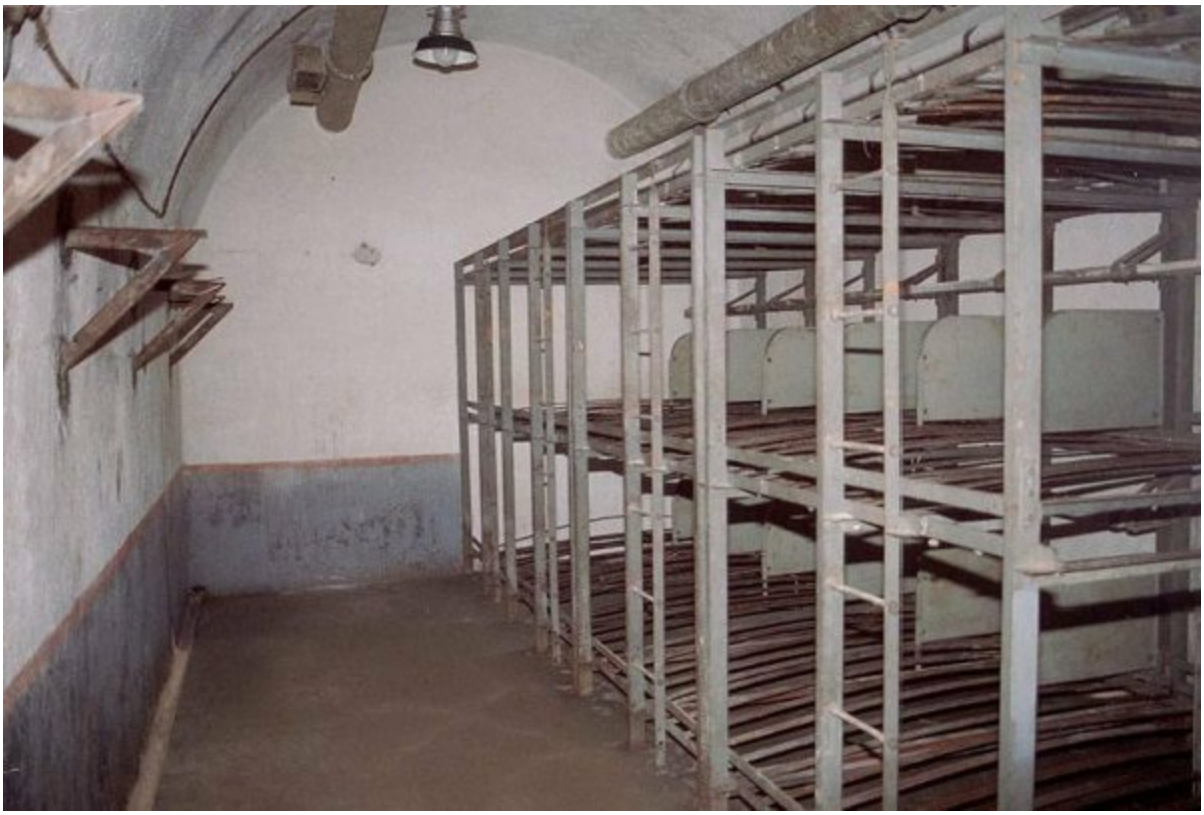
The Maginot Line's physical structure determined where it fit into French military strategy and what could and could not be expected of it in wartime. The French used poured concrete for most construction, supplemented by domed steel turrets mounting guns in some larger fortifications. The Germans used similar materials and construction methods for their West Wall and its successor, the Siegfried Line.

The two main emplacements found on the Maginot Line consisted of *gros ouvrages*, or “Large Works,” and *petit ouvrages*, or “Small Works.” *Gros ouvrages* mounted a variety of artillery pieces, while the French armed *petit ouvrages* with mortars and machine-guns only. The engineers built each *gros ouvrage* as two separate halves, divided by blast-proof structures and capable of firing on one another. Thus, if the Germans overran or destroyed one half of a *gros ouvrage*, the other half could easily continue fighting.

Pictures of the Maginot Line's ouvrage du Michelsberg

The *gros ouvrages* bristled with two types of 75mm guns, a 135mm "bomb thrower" which blended characteristics of a howitzer and a mortar, paired 81mm mortars, and machine-guns, along with 37mm and 47mm anti-tank guns. The *petit ouvrages* contained only 81mm mortars and machine-guns for the most part, but the engineers individualized each defensive work to best suit the exact terrain and some included non-standard weaponry not found in most other fortifications of their type.

Each *ouvrage* featured a considerable garrison. However, though the engineers added barracks, ammunition stores, and other facilities to each *ouvrage* to make it relatively self-sufficient – with an above-ground military road or rail line leading to its rear entrance for rapid, effective resupply – the "Maginot Line legend" adds details to the fortress line absent in reality. For example, while each *gros ouvrage* included miles of underground galleries, including up to 2 miles of subterranean railroad, the entire Maginot Line was not interconnected with a massive subway system, as is sometimes claimed. Moreover, while they were sophisticated and constructed with considerable thought and a good deal of useful automation, the forts lacked "science fiction" features and needed a large complement of soldiers to keep them running properly. "The average garrison of a gros ouvrage numbered over 500 men although two in the Maginot Line Proper had over 1,000 men while a few had only about 200 men. In the Alpine positions the gros ouvrages usually were manned by only about 200 men even though their fire power was similar to that of the forts of the Maginot Line Proper. The ouvrages with the most men had the largest and widest variety of facilities." (Kaufmann, 1988, 72-73).



Picture of a barracks in one of the ouvrages

In all, the main portion of the Maginot Line in northeastern France included 22 *gros ouvrages* and 31 *petit ouvrages*, and the French built scattered and clustered works elsewhere along their frontier, including the Italian frontier and in Corsica. Constructed out of ponderous slabs of reinforced concrete, the *ouvrages* featured walls and roofs 8.25 feet thick in the case of *petit* emplacements and 12 feet thick for *gros* types. French engineers anticipated these defenses could withstand hits even from 450mm railway guns, and the war eventually proved them correct.

The turrets fitted to the Maginot Line *ouvrages* offered impressive protection and technological features for their day. Each rested in a well, from which it lifted to fire and into which it retracted for additional protection during artillery bombardment or aerial bombing. Retractable turrets, known as

“eclipsing turrets,” represented an advanced feature for the day. A mechanized counterbalance system permitted this raising and lowering; when raised from its well, a turret rotated 360 degrees, creating a powerful, effective field of fire for the men occupying it.

Armor protection consisted of massive concrete slabs sandwiched between layers of thick steel plate. The resulting shielding measured from 12 to 14 inches thick, with the heaviest armor located on the roof. “An *avant-cuirasse* (frontal armor) consisting of large curved plates, thickest in the top half, surrounded the turret and fit on a large shelf above the turret control room. After the armor was in place, the gap between the shelf wall of the block and the armor plates was filled with concrete. When the turret retracted into its well, its roof rested on top of this frontal armor, which gave it added protection.” (Kaufmann, 2006, 42).

Turret diameters ranged from 6.5 feet for a two-man machine-gun turret all the way up to 13 feet for a 75mm gun turret. Conveyer systems carried fresh ammunition to each turret's armaments, while spent casings automatically ejected into a collection bin immediately behind the weapon and traveled down a toboggan chute to collection points on a lower level of the fortress. This kept all weapons steadily supplied with ammunition and prevented spent shell casings from cluttering the turret interior, without the crew needing to take precious time away from firing their weapons to carry out these tasks.

Picture of a 75mm turret

A third defensive structure supplemented the two types of *ouvrages,* helping fill the gaps between them. Known as interval casemates, these two-story bunkers included embrasures for machine guns and 37mm or 47mm anti-tank guns. A lieutenant commanded each with some 30 men under his command, though some casemates contained smaller garrisons. Weaponry also varied depending on local terrain and tactical expectations.

Barbed wire and anti-tank barriers surrounded each interval casemate. The roof sported three low steel domes, or *cloches* (bells), for observation and possibly machine-gunning enemy infantry who got onto the roof. Each roof also featured an armored searchlight controlled from inside the casemate, with no need for a man to expose himself to operate it. The French set up the casemates to fire parallel to the Maginot Line defenses, not outward at right angles like the larger emplacements: "Firing chambers were located on the upper floor and were oriented to fire to the flank along the line of anti-tank obstacles, not to the front towards an attacking enemy. Orientating the casemates to fire to the flank minimised the exposure of firing embrasures to direct enemy fire while allowing the casemates to hit the enemy in the flank at the point where he was most vulnerable." (Allcorn, 2003, 11).

Thus, the Maginot Line presented a chain of powerful strongpoints sharing interlocking fields of fire, rather than a continuous "wall," to the enemy. Many positions featured steel railroad ties set upright in the ground as anti-tank barriers, arranged in multiple rows to provide an impenetrable depth of defense. Though combat engineers might blow a gap in these anti-tank barriers, the French would keep them under constant artillery and machine-gun fire, inflicting heavy losses on men and vehicles and possibly forcing a retreat. Even if the enemy broke through, losses would fray and disorganize their units, making them easier prey for interval forces moving up in support.

Meanwhile, barbed wire entanglements provided ample protection from infantry. Situated on open ground swept by machine-guns and artillery, these entanglements would pin men in a killing ground where the French soldiers could decimate them. The French engineers placed these barbed wire obstacles in artificial depressions, or "ha-has" as the English termed them, clearing their own fields of fire and preventing direct enemy shelling of the wire, which could potentially clear gaps in it.

With the additional support of interval troops, the Maginot Line could pin down and maul advancing armor, infantry, or combined-arms forces. While the French expected some fragmentary enemy units to break through, they anticipated easily mopping up these small, relatively isolated intrusions past the Maginot Line proper.

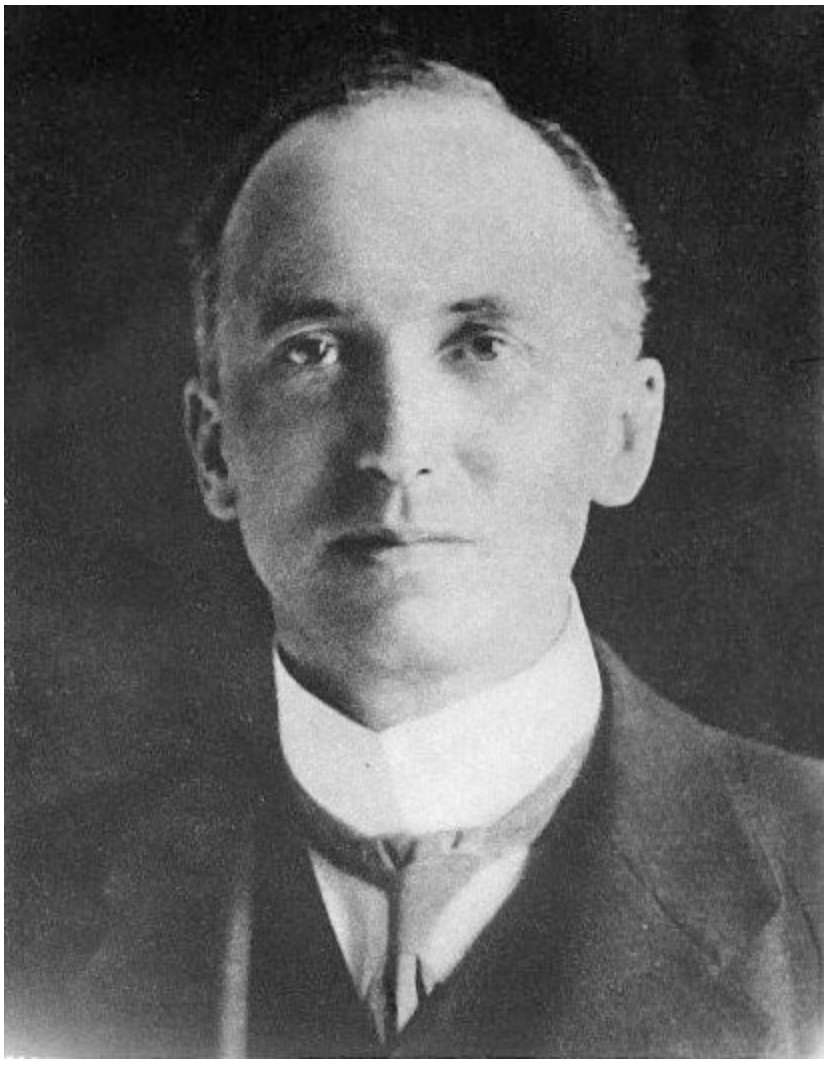
Interestingly, land mines did not number among the Maginot Line's defensive features. The French military, despite its undoubted failings, would have used mines if available, but during the 1930s, landmines represented a new technology and a rarity, with only the Germans possessing effective, mass-produced models. The French simply had no option to add landmines to the Maginot Line.

All fortified positions, including *gros ouvrages*, *petit ouvrages*, and interval casemates, included food and water stockpiles and an independent diesel generator to ensure a constant power supply. Underground power cables brought electricity to the forts from large generating plants deeper in the countryside, but the diesel generators provided ample backup in case the Germans managed to sever the subterranean cables.

Additionally, the French anticipated poison gas attacks, not knowing Hitler's experiences with a gas attack prompted him to eschew this particularly insidious weapon despite his otherwise merciless nature. Each fortified work included advanced air purification systems and, if necessary, generated "overpressure" to exclude poison gas from outside the *ouvrage* or casemate. The engineers filled all observation slits with thick, armored glass in order to exclude both gas and grenades.

The Maginot Line's weakest point lay in its relatively feeble anti-aircraft capabilities. Though equipped with anti-aircraft guns, these occupied less protected positions due to the necessity of firing upwards. Gun crews continued firing while aircraft remained relatively distant, but when a fighter dove to strafe them or a dive-bomber to unleash its bomb, their chief defense consisted in abandoning their gun and temporarily retreating into a nearby reinforced concrete bunker. German Stuka dive-bombers exploited this flaw by continuing to dive even after expending their bombs, suppressing the French anti-aircraft gun crews even while effectively unarmed.

During the war, the French soldiers manning the *ouvrages* improvised their own air defense by firing their artillery at German aircraft attacking adjacent fortifications. This makeshift measure succeeded in shooting down a handful of aircraft, but for the most part, the Luftwaffe aircraft lacked ordnance powerful enough to damage the Maginot forts and the Maginot Line lacked the weaponry to interdict aircraft. The Luftwaffe therefore penetrated deeper into French territory to attack more vulnerable assets. Some leaders recognized this inherent weakness of the Line, but little could be done to rectify it. “Sir John Simon, the British Foreign Secretary, had no doubt of the threat posed by the Nazis. In March 1933, he informed the Cabinet that ‘aviation offers to Germany the quickest and easiest way of making her own power effective … Against military aircraft the extensive fortifications of the French frontier [the Maginot Line] cannot avail ... civilian populations must be organised and drilled in preparation for air bombardment and gas attack.’” (Black, 2012, 131).



Simon

Never intended to operate in isolation, the Maginot Line's strategy included a concept of "interval forces" to plug the inevitable gaps in the line. These interval forces provided a mobile element, with soldiers capable of shifting to contain a breakthrough, reinforce a beleaguered sector, or retake portions of the Line seized by German units. The total force consisted of 35 divisions, a full 33% of the forces available to the French Army at the start of the war.

Though sound in theory, one major factor hampered development of this idea to its full extent. Both the French and Germans realized modern warfare would be fast-moving and extremely complex, yet the two military forces took diametrically opposed methods when dealing with this new reality. The French chose to centralize control even more, attempting to forestall unpleasant "surprises" by keeping individual units on a tight leash and subordinated to an overall plan. In this manner, they hoped to greatly reduce chaos and disorder so as to remain firmly in control of a rapidly shifting situation.

The German Wehrmacht, by contrast, embraced the new situation wholeheartedly. Rather than fighting against the complexity with a simplifying "central command," they gave individual units and low-level commanders unprecedented freedom from centralized oversight. Though they used grand strategy boldly – such as the two huge pincer movements which sliced off whole thirds of Poland's territory in a matter of days – they encouraged independent initiative on the part of low-ranking officers regarding how to achieve objectives. This gave the Germans a dynamic, highly flexible, extremely competent and aggressive military structure that proved overwhelmingly superior to the cumbersome and rigid French approach.

The interval forces consisted largely of infantry, with artillery support and a scattering of armored vehicles and aircraft. As usual with French military doctrine, the most decisive weapons available – airplanes and tanks – deployed in a highly diffused fashion rather than in concentrations, thereby squandering most of their potential. Part of this problem stemmed from the fact that the interval forces operated on the basis of a tactical system devised in the 1920s, even before the first Maginot Line construction began. "If the enemy managed to break through the front, the French response was known as *colmatage*, plugging the gap by moving reserves into the path of the attacking troops in order to slow down their advance and restore a continuous front. Infantry remained the key to victory: '[P]rotected and accompanied by its own guns and by the guns of the artillery, and occasionally preceded by combat tanks and aviation ... the infantry conquers the ground, occupies it, organizes it and holds it.'" (Jackson, 2004, 25).

Though this scheme might perhaps suffice to deal with German incursions, the French needed an offensive arm to make the Maginot Line truly effective. The Line would slow, channel, and impede invading forces, setting them up for a devastating counterattack which might force a retreat. Only in this way could the French hope to actually win rather than briefly postpone inevitable defeat. Indeed, the Maginot Line objectively offered exactly the kind of battlefield control necessary to set up a devastating counterpunch; in modern warfare, shutting down an enemy's strategic mobility puts them in a vulnerable position, after which an army can strike easily at weak points and exploit opportunities when their adversary suffers from strategic immobility.

However, while the Maginot Line provided strategic defense sufficient to greatly reduce German

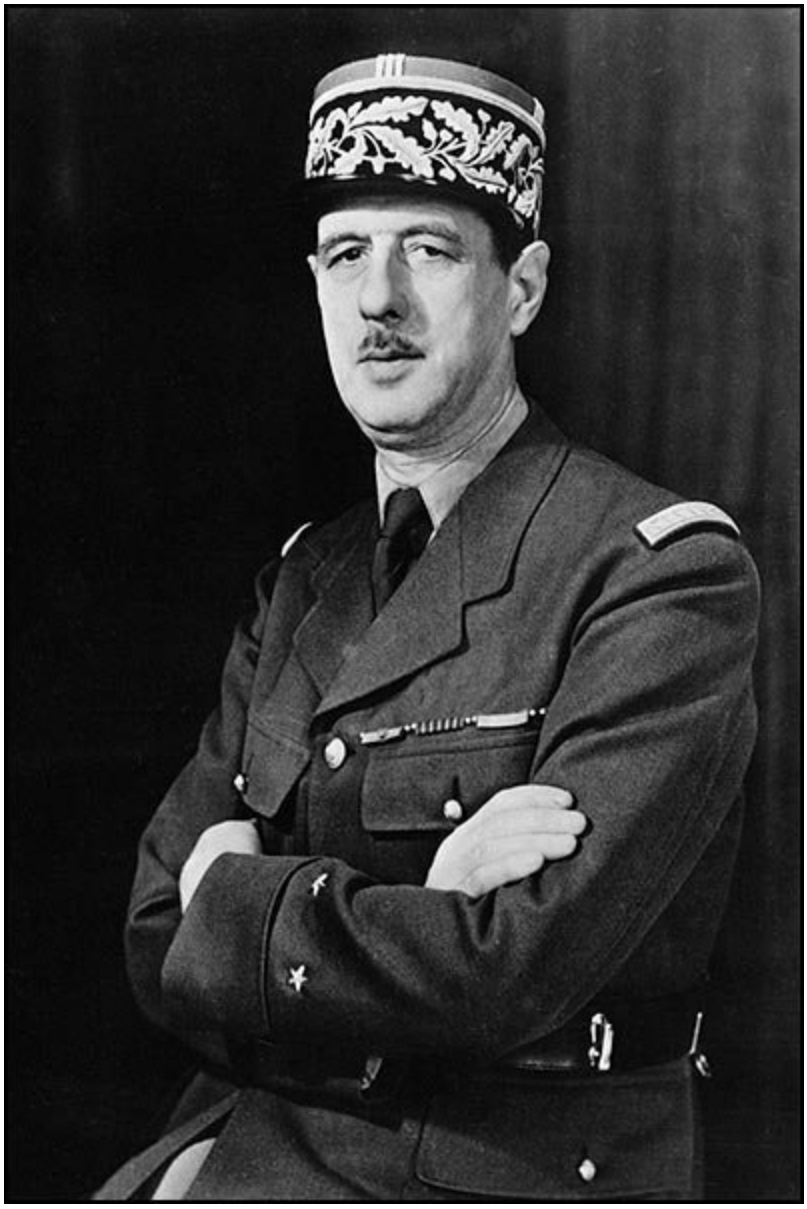
strategic mobility for a time, the French lacked an effective offensive arm to take advantage. French forces remained infantry-based and mechanized only slowly, meaning rapid exploitation of enemy weaknesses or mistakes remained impractical in the vast majority of cases on a battlefield stretching across a nation. This is somewhat ironic because French military thinkers devised strategies remarkably similar to German blitzkrieg tactics, including sing separate tank forces as an “armored fist” to punch deeply and rapidly into enemy lines. Heavily protected and providing overwhelming concentration of force at the point of contact, such forces could penetrate, encircle, and disrupt, breaking enemy advances and capturing large numbers of suddenly isolated soldiers cut off from their supply lines by the steel juggernaut.

Nevertheless, the hidebound French Army command eschewed these new methods as the harebrained schemes of hot-blooded young officers, adopting a very different strategy fatal to their chances against the Germans: “the Chars de Combat was intended by its creator, General Estienne, to form a wholly independent arm. He had envisaged a mobile armoured corps of 100,000 men driving into the heart of the enemy position to devastating effect, crushing everything in its path. But this idea did not prevail; in 1920, tanks were attached to the infantry, and consequently made subordinate to its slow methodical tactics.” (Sumner, 1998, 11).

In a bitter twist of fate, the French possessed a tank superior to any of the Panzers fielded at the time by the Wehrmacht. The 30-ton B1-bis, though slow, mustered firepower superior to the German tanks of the era in the form of its hull-mounted 75mm ABS SA 35 howitzer and 47mm turret-mounted antitank gun. Its 60mm of armor gave it considerable protection compared to the opposing Panzer II's 30mm armor, and the Panzer III's 50mm armor (in the late Ausf J variant). A 36-ton B1-ter with 70mm armor and a greatly upgraded engine never saw field service. The B1-bis gave a good account of itself during the invasion of France, frequently surviving even after destroying several German tanks, but the scattered deployment adopted by the French Army diluted the effect of these armored vehicles to overall uselessness. Local success in a fight between two or three tanks on each side totally failed to alter the strategic course of the campaign.

B1-bis

With a mobile, independent tank force such as the kind Charles de Gaulle and other French "mavericks" envisioned, France might have exploited the opportunity offered by the Maginot Line. A powerful advance through Belgium might have inflicted sufficient damage to stop the Germans in their tracks, while the Maginot Line and its interval forces prevented frontier penetration elsewhere. Indeed, The advocates of such a tank force – a French equivalent of German Panzer corps – attempted one last time to persuade France's leadership to adopt a modern armored fighting vehicle doctrine. Proving that foresight sometimes exists also, even though the highest decision makers disregarded it in this case through a combination of preconceived notions added to financial and political difficulties, these men outlined the exact situation well before the actual disaster that witnessed the defeat of France. "It was in this context that De Gaulle's spokesmen made a public plea for the creation of an armored corps. […] Jean Le Cour Grandmaison led off. [...] 'The indispensable complement to the fortified system in the East,' he argued, would be 'a maneuvering force, mobile enough and powerful enough either to stem a breakthrough without delay, ... or to exploit immediately in depth a halt in the enemy's offensive.'" (Hughes, 2006, 246). However, with strategic mobility reduced to a walking pace, the French proved unable to go on the offensive and give the Wehrmacht a bloody nose sufficient to cripple Hitler's invasion plan and save France, at least temporarily.



De Gaulle

Chapter 4: Politics

Though politics lie behind every war and often influence strategy and tactics to some degree, the Maginot Line relied on political factors to a degree that can be considered extraordinary by any standard. The entire nation of Belgium, in effect, formed the Line's northern end, and with no ridge lines in the flat coastal territory beside the North Sea from which emplacements could command a wide field of fire, the French constructed no extension of their "Great Wall." This left a potential weak point many miles wide, so the French relied on their alliance with Belgium to permit them to advance into Belgian territory if and when hostilities erupted between France and the Third Reich. The French remained prepared to take the offensive here, at the northern end of their line, despite their defensive stance elsewhere, and though not openly expressed, France's leaders hoped devastation might thereby be confined to foreign soil.

The difficulty ultimately lay in securing the cooperation of the Belgians. In the early days of the 1920s, before construction workers poured the concrete for the first casemate or gun emplacement, the Belgians realized their strategic importance to the French and used it to extract political and economic concessions from their ally. Based on this, French generals and politicians might have drawn important conclusions about the level of cooperation likely from the Belgians in a crisis: "Appreciating the importance France attached to a military convention, Belgium's leaders insisted on a prior settlement of the outstanding political dispute between the two countries, the question of Luxemburg's railway system. Only when this matter had been satisfactorily resolved, did the Belgians set about in earnest to discuss a military convention." (Hughes, 2006, 66-67).

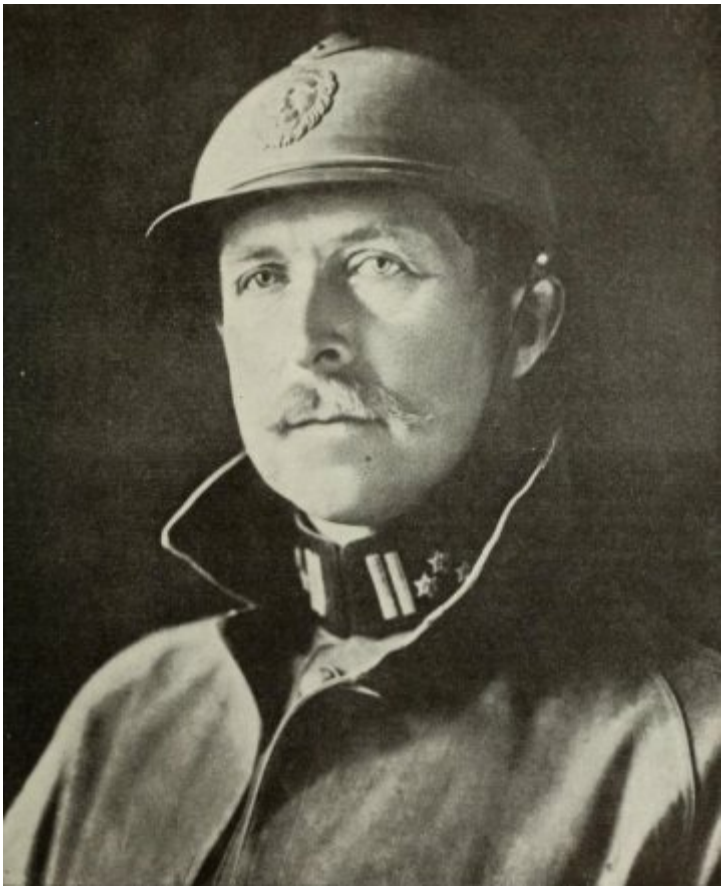
The Belgian government clearly viewed Germany as far less of a threat than did the French, and Belgium showed a distinct lack of commitment to common action in its willingness to use the situation to extort railroad contract concessions from France. Later, as Nazi Germany began its rearmament program, Belgium declared itself neutral in 1936, dealing a serious blow to the strategy devised for the Maginot Line.

In the end, Belgium's adoption of neutral status failed to keep it safe from Nazi aggression, but it hindered French efforts to counter the German threat. French forces could not advance into Belgium prior to the Germans actually invading, and while the Belgians would undoubtedly call for aid once hostilities commenced, a neutral Belgium ensured the French Army's northern detachment began the war inside French borders rather than reinforcing Belgium's eastern border and perhaps halting the Germans well before they could gain a solid foothold on Belgian soil.

Making matters all the worse, the French decided to create no fortifications along the Belgian frontier proper to avoid pushing the Belgians towards a neutral position. Though the unsuitable, wet terrain also played a major role in the French decision, preventing Belgian neutrality played a part in the choice. Yet no sooner had the French completed the Maginot Line – leaving the northern gap to reassure the Belgians they could count on French support – than Belgium adopted the very neutrality the French feared.

The switch of position derived from the Belgian monarchy's dependence on its king to set foreign policy. While one monarch continued to live, Belgium displayed remarkable constancy and reliability in its alliances. However, the death of a monarch brought sudden changes more abrupt and startling

than would usually take place in a representative democracy. King Albert I of the House of Saxe-Coburg-Gotha committed his nation to a French alliance during the earlier 20th century, but on February 17th, 1934, King Albert I, climbing alone on the Roche du Vieux Bon Dieu, suffered a fatal mountaineering accident. A pinnacle to which he secured his rope broke away, and the King plunged some 60 feet to the bottom of a ravine. The fall killed him, and the vigorous alpinist monarch's successor, his 33 year old son King Leopold III, adopted a very different approach to foreign policy. "Wherein lay the security of Belgium? On 14 October 1936, Leopold III revoked the Franco-Belgian Treaty, thereby opting for a return to the neutral status of pre-1914. Said the King, with the optimism of the imprudent little pigs: 'This policy should aim resolutely at keeping us apart from the quarrels of our neighbours…' For France it meant that, in the event of war, she could not enter Belgium until Hitler had already invaded. In one stroke the whole of her Maginot Line strategy lay in fragments." (Horne, 2007, 50).



King Albert I

King Leopold III

In the wake of these events, the French scrambled for solutions and found none. The French people and military found the notion of fighting on French soil repellent after their dreadful losses in World War I, but building an extension of the Maginot Line along the Belgian border to the sea was impractical, as both costs and the soft, muddy terrain weighed against this plan. The French Republic's politicians, wishing to keep their posts, pretended to weigh plans for building additional Maginot forts, and they did build some more blockhouses, but the defenses remained scattered and weak due to lack of money.

The improvident Leopold III caused even more damage to the Allied cause, though this particular catastrophe lay unseen in the future at the time he canceled the Franco-Belgian Treaty, leaving both his country and France open to falling piecemeal to Nazi aggression. Unfortunately, Hitler immediately understood the opportunity King Leopold III dropped into his lap; the Fuhrer and his high command immediately recognized Belgium as a weak point in the menacing line of French defenses now that its neutrality isolated it from French aid. “Meanwhile, in the reoccupied Rhineland itself, Hitler hastened the construction of his own powerful line of concrete forts, opposing the Maginot Line – the West Wall, or ‘Siegfried Line’. As Churchill predicted […], those fortifications would ‘enable the German troops to be economised on that line, and will enable the main forces to swing round through Belgium and Holland.’” (Horne, 2007, 50).

The story of French and German strategy during the late 1930s had been one of two fortified lines opposed to one another: the Maginot Line and the Siegfried Line. No “white elephant” in itself, the Maginot Line suffered a crippling strategic blow through the effective defection of Belgium, opening

a wide gap on its northern flank. This same defection secured the Siegfried Line's northern flank, rendering it essentially impregnable, at least in the time the French would have available to them when the Germans attacked. In effect, Hitler relied on his own “Maginot Line” strategy as a force multiplier, demonstrating the underlying soundness of the French concept. Relatively few men successfully guarded a long section of German frontier, enabling reinforcement of the powerful Nazi offensive forces in just a few sectors.

If anything, these facts suggest that had the Maginot Line enjoyed Belgian support at its North Sea end, and had Charles de Gaulle's independent tank forces seen the light of day, the French might have dealt the Germans a crushing defeat at the border, not in spite of the Maginot Line, as the legend would have it, but because of it. Instead, poorly conceived political maneuvering, combined with military errors in the area of tank doctrine and others, proved fully responsible for denying the Maginot Line its full wartime potential and leading to French military collapse at the opening of World War II.

Chapter 5: The Maginot Line During the War

In at least one regard, the Maginot Line proved to be an unqualified strategic success. The French created it with several major objectives in mind, such as channeling the Wehrmacht's initial thrust into Belgium, thus keeping initial fighting off French soil. The Line achieved this goal, though the French lacked the mobile armored forces necessary to exploit it and deal a knockout blow to the German advance.

The German high command, or OKW, recognized France as the next target after Poland. Overrun in 1939 by Nazi attacks from the west and Soviet incursions from the east, Poland furnished an excellent proving ground for Blitzkrieg tactics. The fighting there also highlighted the weakness of certain German weapons systems such as the Panzer I and II tanks. Production therefore shifted to more effective Panzer IIIs and Panzer IVs.

The invasion of Poland prompted Britain and France to declare war on Germany, starting World War II. Neither nation figured out to do next, however, leaving Hitler with the initiative. Conquering France and using that conquest as a springboard to either coerce the British into backing out of the war (Hitler's preferred solution, as he hoped for an alliance with the English) or to invade the “Sceptered Isle” followed as the logical next step in the struggle.

The OKW initially believed no invasion of France could hope to succeed prior to 1942. However, a much accelerated timetable proved possible with the power of modern transport and paratrooper action to launch a swift, successful offensive, the kind of campaign seen in the Germans’ lightning conquests of Denmark and Norway.

As the French predicted, the Germans entered Holland and Belgium first on May 10, 1940, with the intention of both outflanking the Maginot Line and drawing its defending forces away to the north. A French army under Henri Giraud moved to the support of the Netherlands, but the Wehrmacht's “new style” of warfare prevented him from his intended goal of linking up with the main Dutch military force. The Germans used paratroopers – the elite Fallschirmjagers – to drive a wedge deep behind enemy lines, preventing the French and Dutch from linking up, and the Dutch army's main concentration fell back northward while Giraud's French forces withdrew to the south. When German bombing set fire to Rotterdam, Holland surrendered on May 14, 1940, after which the Germans sent fire engines to assist in halting the blaze.

Giraud

The Wehrmacht also struck more rapidly than its enemies anticipated in Belgium. Glider-borne troops seized the main Belgian fortress in a few hours on May 11th, and Fallschirmjager took key river bridges, once again exerting powerful control over the battlefield and cutting off much of the Allies' potential for tactical and strategic maneuver. French General Georges Blanchard led the First Army forward nevertheless, and in two tank battles, he managed to halt the Germans temporarily, but events elsewhere proved the undoing of the French defense.

Rather than throw the main weight of their attack either into Belgium – where they knew the French awaited them – or against the powerful Maginot Line, the Wehrmacht sent a deadly thrust through the Ardennes Forest instead. The French judged the Ardennes to be largely impassible for tanks, which it had been during World War I, but the advanced tanks of the late 1930s negotiated the forested and soft terrain with little difficulty. The French left the Ardennes as a leafy gap in their national "armor," a narrow but crucial weak point between the Maginot Line and the armies supporting Belgium.

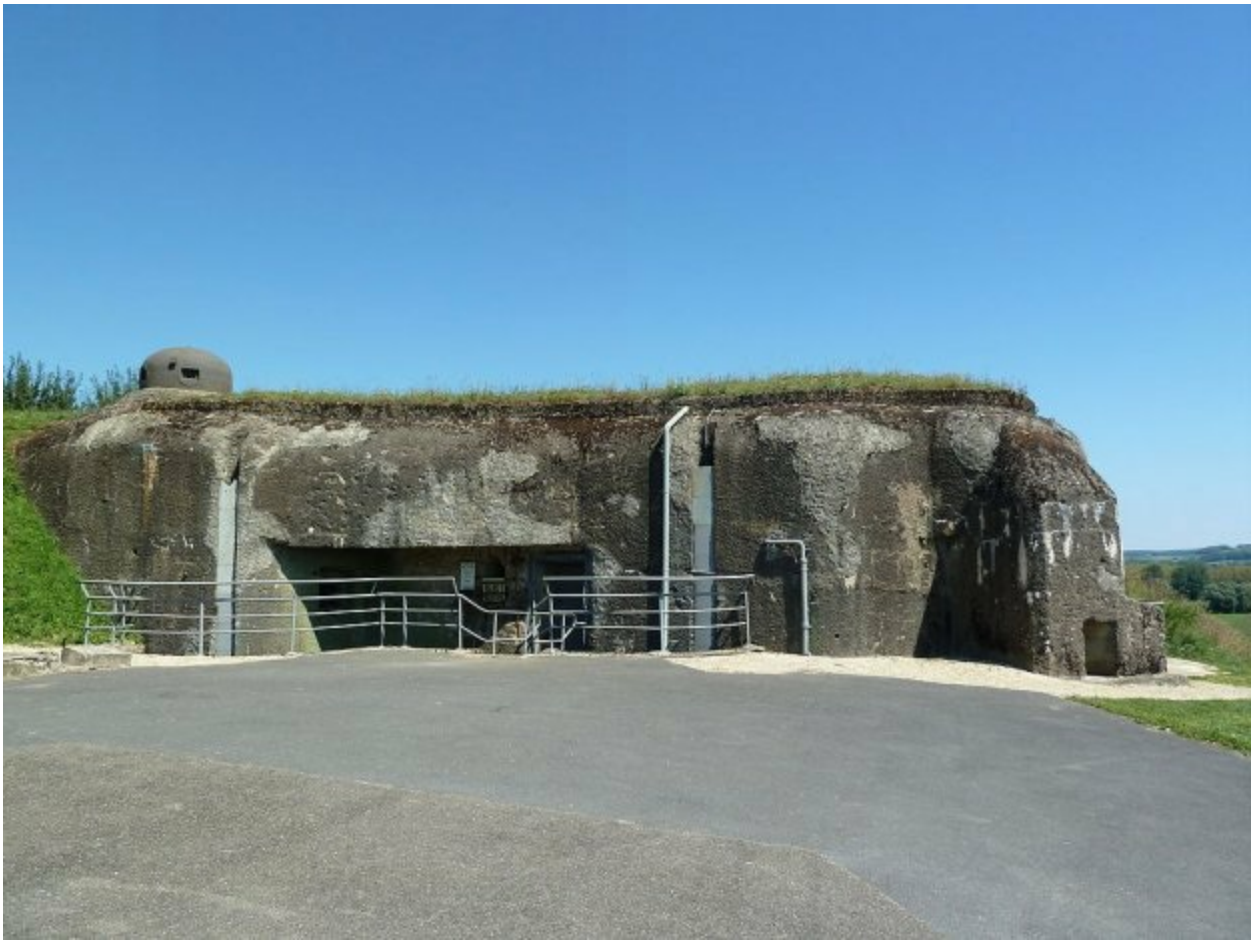
While the French concentrated their attention on Belgium, 1,222 tanks, 400 other vehicles, and 134,000 men under the famous Panzer General Heinz Guderian rolled steadily forward down the labyrinthine roads of the Ardennes. Arriving at the River Meuse at Sedan on May 13th, the Germans immediately attacked across the river. The stunned French defenders, manning small, isolated bunkers rather than massive *ouvrages*, found themselves under a torrent of fire and steel delivered from the sky by 1,000 Luftwaffe aircraft, including the dreaded Stuka dive-bombers, while the German engineers forced a crossing. Small parties of Wehrmacht soldiers crossed immediately in rubber boats to knock out the bunkers, as recounted by one Staff Sergeant Rubarth, soon to be a recipient of

the Iron Cross for his actions in taking no less than seven of these structures: “I land with my rubber boat near a strong, small bunker, and together with Lance Corporal Podszus put it out of action. ... We seize the next bunker from the rear. I fire an explosive charge. In a moment the force of the detonation tears off the rear part of the bunker. We use the opportunity and attack the occupants with hand grenades. After a short fight, a white flag appears. ... Encouraged by this, we fling ourselves against two additional small bunkers.” (Jackson, 2004, 44-45).

The French failed to counterattack this penetration successfully, and within 48 hours, German armored units had plunged deep into French territory to the west. Many French divisions in the area, made up of second-rate units comprised of reserve troops and pensioners, panicked and fled without firing a shot.

The French formed a defensive line deeper in the countryside under General Maxime Weygand. Here, the French gave a better account of themselves, fighting with immense courage despite their lack of hope until the concentrated attacks of well-equipped and highly aggressive Wehrmacht infantry, deep penetration by Panzer attacks, and the relentless dive-bombing of the Luftwaffe compelled them to fall back. “The words of a German soldier provide an apposite summary of events after 5 June when the French Army was fighting against odds of three to one on the Weygand Line: 'In the ruins of the villages, the French resisted to the last man … Here, on the Aisne, the French regiments were determined to defend every last route to the heart of France, in a battle that would decide the fate of their country. The *poilu* had done his duty.” (Sumner, 1998, 4).

After everything that had gone into building it, the Maginot Line proper only saw action following these opening disasters. With the British in full retreat from Dunkirk and the Panzers pushing towards Paris, the Germans felt secure enough to attempt reduction of the Maginot Line on their flank. The first encounter with the Maginot Line involved four *petit ouvrages* on the extreme western end of the fortifications, known as the “Maginot Line Extension.” The Germans attacked the westernmost of these from May 17-18 after a preliminary bombardment that annihilated the ouvrage's antitank defenses and barbed wire entanglements. A small, relatively weak position armed only with 25mm cannons and machine guns, “La Ferte” still resisted as vigorously as possible. German combat engineers used explosive charges and 88mm guns to blow open a number of the *ouvrage's* turrets, after which they dropped charges inside. Return fire ceased late on May 18, and when the Germans cautiously entered the *ouvrage* on the morning of May 19, they found the approximately 100 defenders dead but mostly unwounded; they had apparently asphyxiated when the *ouvrage*'s ventilation system failed. Their commander, Lieutenant Bourguignon, asked his superiors repeatedly via radio for permission to evacuate due to uncontrolled fires in the fortification, but the French command refused to listen to him and the French soldiers slipped into their final sleep during the night.



Pictures of the attacked fortifications

Following this appalling failure, the French sector commanders, not wishing to vainly sacrifice more men, ordered the other three *ouvrages* of the Maginot Line extension evacuated, but events overtook the French defenders before they could carry these orders out.

The initial German thrust bypassed the city of Maubeuge and its defenses, but the OKW tasked following units with seizing the city in late May, despite the French emplacements defending it. The Maginot defenses in the area consisted of four *ouvrages,* named Bersillies, Sarts, La Salmagne, and Boussois, interspersed with 7 interval casemates, 13 casemates forming a 6-mile line in the Mormal Forest, and various small blockhouses. The French 101st Division of Fortress Infantry manned these positions, supported by 120mm and 155mm artillery batteries.

The 5th Panzer Division and the 8th and 28th Infantry Divisions of the German Army advanced to seize these defenses on May 18, and though heavily outgunned, the French defenders fought valiantly, pinning the German forces in place for four days before the Wehrmacht finally overcame them. "Boussois was the first to come under fire on 18 May. Although its 25-mm guns were no match for German 150-mm cannons and deadly 88-mm Flak, the little fort resisted gamely. On 20 May, [...] The mixed arms turret of Block 2 at Boussois suffered some damage and was unable to retract, but it was repaired in the dead of night. On 21 May, the powerful interval casemate of Heronfontaine repelled a German assault with its mixed-arms turret." (Kaufmann, 2006, 162).

The Germans pounded the French positions with powerful mortars, including 210mm mortars, and repeated Stuka dive-bomber attacks, but the cement and steel resisted these strikes and the French fought on. The Germans finally reduced the casemates by attacking them from their blind side and

using 88mm guns point blank. This damaged the ventilation systems sufficiently so that the French surrendered to avoid death by asphyxiation.

Meanwhile, the four *petit ouvrages* proved tougher nuts to crack. The Germans eventually forced their evacuation or surrender by use of demolition charges, 88mm gun fire directed point-blank at firing embrasures, and flamethrowers. The Wehrmacht troops found it necessary to lay down enormous smoke-screens so that they could approach the emplacements across open ground to lay charges.

On May 22nd, the Germans attempted the reduction of Fort Boussois. Their first dawn attack came to grief when their supporting artillery fire fell short and killed or wounded large numbers of attacking troops, forcing them to fall back. Later in the morning, a massive artillery bombardment forced the French to retract their eclipsing turrets into their wells, reducing defensive fire enough for German combat engineers to climb on top of the *ouvrage*. Locating the ventilation system conduits, the Germans dropped explosive charges in, knocking out the air purification systems. Faced with a slow but inevitable death by asphyxiation, the gallant French defenders surrendered at noon.

The ouvrage Boussois

That afternoon, the *ouvrage* La Salmagne also fell. Smoke rounds enabled German combat engineers to climb atop it. These men used axes to destroy many of the machine guns protruding from firing embrasures and began their search for the ventilation shafts. The French, knowing the game was up, surrendered before their ventilation failed. The French evacuated their last positions on May 23rd, but the Maubeuge fight had demonstrated the toughness of even *petit ouvrages* and casemates against the era's heaviest weapons.

The slow, piecemeal reduction of the Maginot Line continued, though the Germans focused most of their efforts elsewhere for a time. The Wehrmacht took a few casemates here and a *petit ouvrage* there, but they were mostly content to leave the line be for a time. This changed on June 14 when the

Wehrmacht launched Operation Tiger against the Sarre Gap. This relatively weakly defended section of the Maginot Line lay between the two massively fortified, modern sections of the line guarding the frontier from Switzerland to the Ardennes. This southward offensive planned to pierce the Gap, defended only by blockhouses and dikes rather than a continuous line of *ouvrages*, with 11 infantry divisions against 5 French regiments, plus Luftwaffe air support and a colossal supporting force of 1,000 artillery pieces.

The Germans commenced their attack with vast artillery bombardments, followed by large infantry and vehicle attacks. However, the French defenders of the Sarre Gap fought back ferociously. The blockhouses, despite their small size, made good use of interlocking fields of fire to mow down the German attackers. The French also opened the gates to prepared "flood zones," filling whole areas of the front with river water and thus further impeding the German advance. Pre-sighted French artillery pounded the Wehrmacht with lethally accurate shelling.

The German commander, von Witzleben, almost called a full retreat at nightfall on June 14, as the French had repulsed most of his attacks with heavy losses and the few gains appeared tactically insignificant. However, a German patrol in the Kalmerich Forest captured a French courier bearing a retreat order, which convinced Witzleben to order another attack the following morning. The French, falling back under cover of darkness, found themselves overtaken by a fresh German offensive the following morning. Once again, the French soldiers halted the immensely superior numbers of the Germans by using the defensive positions further from the border as a force multiplier. On the night of the 15th, however, they withdrew rapidly, enabling an unopposed German breakthrough in the Sarre Gap on June 16th. At this point, the Germans had broken the Maginot Line's remaining defenses in two.

Despite the breakthrough in the Sarre Gap, the Metz and Lauter halves of the Maginot Line remained unconquered. Massively fortified and heavily armed, the fortress system readily survived the loss of the Sarre section at its center and continued to hamper German troop deployments across the border.

The Germans launched Operation Little Bear, a Rhine crossing at another weak point in the Maginot Line, on June 15th. 400 pieces of artillery destroyed many small casemates and bunkers outright, but the *ouvrages* proved immune, as usual, to both artillery fire and Stuka dive-bombing. By June 16th, the French retreated from their riverbank positions, but they did so only to occupy even tougher positions in the Vosges Mountains, limiting the effect of Little Bear and leaving the Maginot Line still essentially intact and combat-ready. This situation did not change until after the armistice on June 25th, 1940.

Nothing highlights the fact that the Maginot Line could have proved decisive if better supported and used as a base for aggressive counterattacks based on flexible, largely independent commands than the reality that its defenders were the last French soldiers to surrender. "[W]hen the armistice took effect, the main fortifications of the Maginot Line were still intact and capable of continuing the fight. Although active combat had ended, several fortress commanders refused to admit defeat. Remaining defiant, they surrendered only after being ordered by Gén. Georges, and then only under protest. In early July, a week after the rest of the French Army laid down arms, the last fortress was handed over by its crew to the Wehrmacht." (Romanych, 2010, 90).

Ironically, the fortress system whose name has become a synonym for a fear-inspired defensive strategy actually stood as the last defiant bastion of France during the Nazi conquest of 1940. Though this defiance remained largely symbolic, the final spark of French fighting spirit kindled for a moment in the Maginot Line.

In the meantime, more practical defiance to the south baffled the overweening ambitions of another Axis dictator, the melodramatic, ineffective Benito Mussolini. As it turned out, the most successful Maginot-style French defenses in 1940 lay not along the northeastern frontier with Germany but in the southeast, facing Mussolini's Italy. The Italian dictator craved a portion of France also, so he sent his armies to invade his Gallic neighbors in response to Hitler's advance. Mussolini's lust for monetary and territorial aggrandizement, rather than any particular strategic necessity, triggered the attempted Italian incursion in southeast France. The self-styled “Duce” worried that Hitler and his Third Reich would seize all of the French territory, with its monetary, manufacturing, and agricultural resources, leaving him with only his lower-value African empire. “On May 26, Mussolini cornered two of his chief military subordinates, Marshal Pietro Badoglio [...] and Air Marshal Italo Balbo [...] in the hall of the Palazzo Venezia in Rome. ‘If Italy wanted to sit at the Peace Conference table when the world is to be apportioned, she must enter the war and enter it fast,’ he exclaimed. Balbo tactfully asked Mussolini if he knew what he was doing. (Mitcham, 2008, 340).

Mussolini

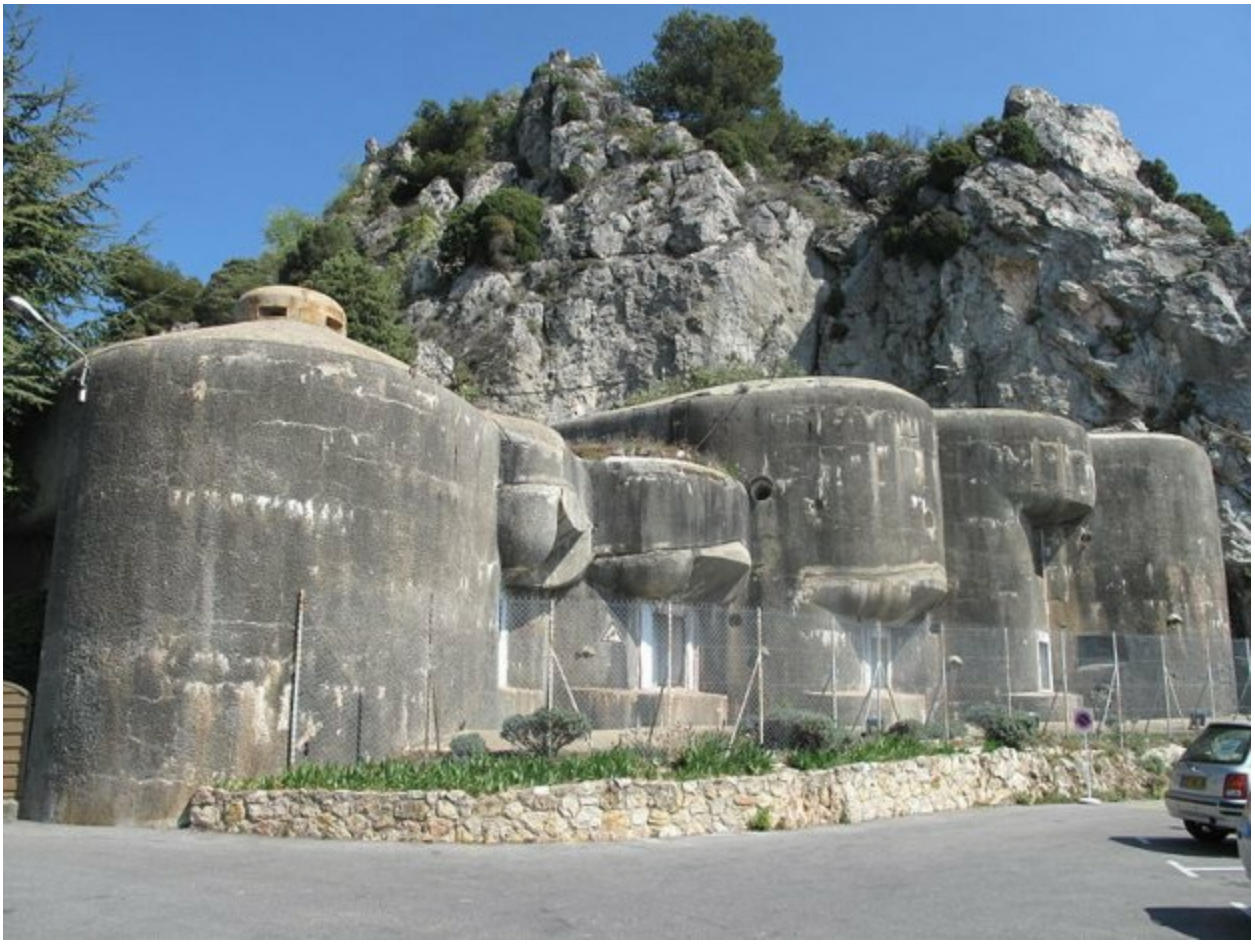
Badoglio

From Mussolini's perspective, his push into France probably seemed a foregone conclusion. The Italians mustered 32 divisions for their westward invasion, while the French manning the “Little Maginot Line of the Alps” numbered just 4 divisions in total. However, the Italians' vast numerical superiority concealed several notable deficiencies on their side and at least one major advantage for the French Army. Italian forces in World War II exhibited lower quality than their German counterparts in terms of training, equipment, and, most crucially, leadership. Italian armored fighting vehicles displayed inferior characteristics to those of practically any other power except the Japanese; Italy's tanks, for instance, carried armor so thin that small arms fire frequently penetrated it, while their guns failed to pierce the protection of even French light tanks, let alone the medium tanks of the British or Americans later in the war.

The other handicap affecting the Italians' chances of military success lay in the terrain itself. The Little Maginot Line of the Alps used advanced fortification techniques employed in the northeastern forts but also benefited from formidable natural defenses provided by the alpine terrain itself. A British observer saw and understood the advantage of these positions half a decade prior to Mussolini's invasion. “Montgomery-Massingberd, who visited France in 1935, commented on the strength of the fortifications facing Italy – ‘tunnelled as they are under 40 or 50 feet of rock, with

embrasures for guns and machine guns covering every approach.'" (Black, 2012, 241-242).

Almost indestructible, and constructed with the same professionalism as the northeastern fortress line, the Little Maginot Line of the Alps also commanded a highly limited number of approaches. Only three to four passes supported major troop movements, and the smaller passes also numbered few enough for the French to watch.



Picture of an ouvrage at Sainte-Agnes

Picture of the ouvrage at Rimplas

With rugged mountain massifs dominating the landscape, the Italians found themselves forced to invade along a handful of suitable routes, all of which the French readily identified and defended. Mussolini's numerical superiority of 32 divisions to 4 gave him little real military advantage with such constraints on his soldiers and careful, scientific defensive preparation by the French.

The Little Maginot Line's most continuous section started at the town of Menton on the Mediterranean coast and followed the Franco-Italian border northward for a distance of 33 miles. The individual forts consisted of infantry blocks – mounting paired machine guns plus rifle embrasures – or artillery blocks – making use of special 75mm howitzers and 95mm cannon not used outside the Alpine regions.

The French packed *ouvrages* densely into this region, including 22 *gros ouvrages* and 22 *petit ouvrages*. Due to lessened artillery threat in the rugged terrain, the French used slightly thinner, 9-foot-thick cement walls and roofs. Ponderous steel drawbridges often closed the main entrance to an *ouvrage*.

Fascist Italy had briefly considered an alliance with France against Germany earlier in the 1930s until British pressure induced the French to protest Italian conquests in Africa, pushing Mussolini into Hitler's camp. Thus, Mussolini declared war on France and Britain on June 10th, 1940. Mussolini failed to inform Hitler of his plans, and for his part, the Fuhrer expressed open contempt for the Duce and his army, while ordering the Wehrmacht high command (OKW) to rebuff any call for assistance or advice from the Italians.

With the Germans swarming into France proper between June 13th and 17th, Mussolini's hopes of seizing a chunk of the dying nation waned swiftly while his army lumbered slowly into position to attack. The Duce wanted his men to invade on June 18th, but even this late deadline proved impossible. On June 19th, with no Italian soldiers yet on French soil, the Germans approached the new French government of Marshal Petain about an armistice.

Mussolini, desperate to get his foot in the door, pushed his commanders even harder to cross into France, to their great disgust. “Badoglio and Ciano condemned this act as tantamount to striking a man who was down, and indeed it did earn the Fascist dictator the contempt of most of the world […] The French met it with General Rene Olry’s Army of the Alps, [...] To the surprise and delight of many—including the vast majority of the German General Staff—Olry held off 32 Italian divisions for five days and inflicted severe casualties.” (Mitcham, 2008, 345).

Mussolini deliberately lied to Badoglio and Ciano on June 20th, telling them at an abruptly-called meeting that he possessed secret information of the wholesale retreat of the French alpine force. This induced them to agree to attack at dawn on June 21st. Showing remarkable courage, Badoglio angrily resisted for several hours before Mussolini finally won him over through a mix of browbeating, cajoling, and comforting lies.

An hour later, Mussolini vacillated and canceled his own attack order, only to then reinstate it. Thus, the Italians began their advance at 3:00 a.m. on June 21st and met powerful French resistance. Exposed on rocky slopes to French machine gun, mortar, and artillery fire, the Italians died in large numbers and failed to gain ground, all while inflicting almost no losses on the French. Near the coast, seven Frenchmen and one NCO in a small casemate halted several divisions of Italians all day. Suffering dozens of casualties from frostbite in addition to the many men killed and wounded by enemy action, the Italians gained minimal ground, besieging the small town of Abries but failing to take it before nightfall.

Over the next few days, the Italians continued to push against the Little Maginot Line. On June 22nd, 5,500 French troops at the Line's northern end, near Bourg St. Maurine in Savoy, flung back a concentrated attack by 50,000 Italian soldiers. A second force, supported by a heavy artillery bombardment from an Italian fort, pushed up the Mont Cenis Pass in thickly falling snow, led by dozens of machine-gun armed L3 tankettes. The French destroyed 20 of the tankettes and cut down numerous Italians, forcing the rest to fall back to their starting positions after several hours of gunfire.

Just one day prior to the armistice, the Italians attempted forcing the Frejus Pass, and once again they suffered defeat thanks to interlocking fields of fire and professionally skillful cooperation between a *gros ouvrage* (GO) and a *petit ouvrage* (PO). “On 24 June, the Italian troops clambered up the snow-covered slopes onto the GO of Pas du Roc and the PO of Arrondaz. The 75-mm guns and the 81-mm mortars of the neighboring *ouvrages* immediately opened fire on the intruders. In addition, the gunners of Pas du Roc and Arrondaz used their weapons to clear each other of the assailants. Thus, a gallant effort on the part of the Italian troops came to naught.” (Kaufmann, 2006, 178).

Though many problems plagued the Italians as they confronted the French, Mussolini –

characterized by the startlingly racist Wehrmacht commander Gerd von Rundstedt as a “Negroid asshole” over the incident – added to their difficulties by hamstringing effective command. The Italian fascist leader issued no overall strategic orders for the campaign, yet he permitted no other officers to issue them either, leaving the military uncertain and muddled. One of his own military commanders left a portrait of the dictator in action: “[T]he Duce made the visit more as a journalist than as a commander: no word to his staff; no visits to the subordinate commands …; not a single conference with the officers, but only rapid review of the troops in formation, often carried out without even descending from his automobile." (Knox, 1999, 8).

For his part, Mussolini blamed the Italian people for the disaster he himself concocted in his wild to seize French territory. The Duce showed no restraint in heaping open contempt on the men fighting and dying for his ambition, while simultaneously trumpeting himself as standing among history's premier geniuses: “What I lack is the right material. Even Michelangelo needed marble to carve his statues. Had he had only clay, he would have been a mere potter. A race that has been enslaved for sixteen centuries could not possibly become a race of conquerors within the space of a few years.” (Mitcham, 2008, 346).

The Italians fared little better in the Riviera near the Mediterranean coast. Though frostbite claimed fewer men at the lower altitudes found on this battlefield, the Italians proved just as ill-prepared against the Little Maginot Line emplacements located here. A whole Italian Army advanced along National Route 7 and came crashing to a bloody halt as soon as it came within range of French emplacements. The Italians managed to take the small city of Menton – because the French abandoned it – and attempted to go around the local *ouvrages* by pushing through a railroad tunnel in the town. An armored train emerged from the tunnel to bombard the *ouvrages* on the nearby heights with its four cannon turrets. The French returned a spirited fire, blasting three of the four turrets to pieces and damaging the train proper. The Italian train retreated into the tunnel.

On June 23rd, two more armored trains and air support arrived in time for an attack on June 24th. The Italians pushed forward against the *ouvrages*, damaging several, and managed to climb on top of one and remain there for several hours, attempting unsuccessfully and valiantly to blast their way inside while raked with fire from the other *ouvrages*. Eventually, their casualties mounted up so high that the Italians retreated.

The Italians planned more offensives, but an armistice went into effect on June 25th, 1940. Hitler agreed to the armistice without Mussolini's input and strong-armed the Duce into accepting its terms. Mussolini demanded the city of Nice, an important port and resort city, plus surrounding territories, but Hitler only permitted him the ground the Italians had already taken. Since this amounted to the town of Menton and a few empty, frozen alpine valleys, Mussolini gained nearly nothing at the cost of 5,500 Italian casualties, including 1,231 men killed or missing (most of whom likely died), and numerous crippling frostbite cases. 40 French soldiers died defending the Little Maginot Line.

After offering what perhaps counts as France's most effective resistance to the Axis during the opening days of World War II, the Maginot Line made one more appearance on the bloody stage of military history before lapsing into legend and becoming a gently decaying tourist attraction in the pleasant French countryside. After the D-Day landings on June 6th, 1944, the Wehrmacht scrambled

for any means to slow the advance of the British, Americans, and other western Allies. This included putting several well-situated *gros ouvrages* back into full working order, garrisoned with German soldiers from the combat-hardened Wehrmacht. The Germans did not use the full Maginot Line but picked and chose those emplacements most likely to prove thorns in the sides of the Americans.

For the most part, the *ouvrages* proved their military value yet again in the hands of their new masters. Much of the Maginot Line fell into disrepair while in the possession of the Germans, but the Wehrmacht garrisoned and refitted some powerful *ouvrages* in the gap between the Belgian and Swiss borders. Most of the fighting occurred from September-December 1944, commencing with the arrival of General George S. Patton's Third Army in the area as the Americans pushed east vigorously.

The Third Army's struggle against several Maginot forts began in September; attempts to attack the *ouvrages* with tanks proved fruitless, and in one such assault, the defending Wehrmacht soldiers destroyed 10 M4 Sherman medium tanks, killing many crewmen, including the Lieutenant Colonel leading the attack. Eventually, the Third Army cleared these obstacles with explosives and white phosphorous hand grenades. The use of these horrible weapons induced many of the Germans to surrender rather than suffer injuries inflicted by the phosphorous burning its way unquenchably into their flesh and destroying their internal organs with poisoning should they survive the initial burns.

The last two *gros ouvrages* facing the Third Army, Wittring and Grand Bois, fell quickly to the 328th Infantry Regiment. An attempt to blast down the door of Fort Wittring touched off its ammunition stocks, destroying the *ouvrage* from within and killing most of the defenders with a single catastrophic detonation. The defenders of the nearby Fort Grand Bois decided to abandon the *ouvrage* that night, allowing the Americans to occupy it without further combat.

The Seventh Army, moving parallel to Patton's, encountered even stiffer resistance in December 1944 around the “Ensemble du Bitche,” a series of interlinked Maginot Line fortifications near Bitche. The toughest of these, Forts Simserhof, Freudenberg, and Schiesseck, suffered sequential attacks designed to reduce them without losing large numbers of American lives. Fort Freudenberg proved weakest when American artillery shells smashed through its roof and walls, pulverizing it and forcing the surrender of those Germans who survived. The Americans destroyed portions of Fort Simserhof before pushing rubble against its doors with bulldozers. When the ventilation systems failed, the German soldiers abandoned Simserhof through escape passages overlooked by the Americans. U.S. soldiers actually broke into Fort Schiesseck, taking the interior in a series of close-quarter firefights. Incredibly, the Americans lost only 17 men killed during this action, revealing the tactical acumen of the local commanding officers. Prudently, they destroyed Fort Schiesseck entirely using 5,000 pounds of demolition charges.

The Ardennes Offensive drew off the Third Army, and the Seventh Army fell back in response to the Nordwind Offensive by the Wehrmacht. The Germans took the opportunity to reoccupy their positions in the Maginot Line, with the exception of the obliterated Fort Schiesseck. Accordingly, the Seventh Army found itself tasked with dislodging the Germans once again from the same positions in March 1945. The 397th Infantry Regiment played a decisive role when it bypassed the Maginot forts to seize the field artillery deployed some two miles eastward. This finished off much of the

Wehrmacht resistance, and the fire of M36 tank destroyers combined with infantry assaults finally broke resistance and caused a German surrender on March 16th, 1945, just two months before the end of the war. The Americans used their winning "combined arms" tactics to root the Germans out of the Maginot Line more certainly and effectively than the Germans had managed when pitted against the French four years before.

With the newly minted Cold War looming over Europe following Soviet tyrant Joseph Stalin's refusal to vacate Eastern Europe following Hitler's death and the Third Reich's fall, the French repaired the Maginot Line and garrisoned it afresh in the immediate postwar years. The Soviets' brazen efforts to starve West Berlin into surrender, thwarted only by the massive U.S. airlifts of food to the beleaguered German civilians, helped encourage the French to keep the forts active all the way into the 1960s.

As time passed and the military value of the Maginot Line faded, the French abandoned many of the works or transformed them into historical sites or tourist attractions. Today, the French government's efforts have brought fresh life to the most important works as surviving reminders of the past, but a few of the *ouvrages,* updated with modern technology and believed sturdy enough to provide shelter from non-direct nuclear strikes, still serve the French military as hardened communications sites, a final echo of the Maginot Line's once-imposing martial role.

Online Resources

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